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ABSTRACT

This teacher's guide and student text present basic information about the causes and effects of earthquakes and tsunamis. The teacher's guide contains suggested activities, materials, and educational objectives for the text. Chapters in both texts are: (1) "Shapes and Movements of the Water"; (2) "Permeability and Buoyancy"; (3) "Life Styles at Different Settings"; (4) "Earthquakes and Tsunamis"; and (5) "Hazards Prevention." (WRM)

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ED 437 265

Earthquakes and Tsunamis Pre-Elementary School Teacher's Guidebook [and] Pre-Elementary School Textbook

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EARTHQUAKES AND TSUNAMIS

TEACHER'S GUIDEBOOK PRE-ELEMENTARY SCHOOL

SERVICIO HIDROGRAFICO Y OCEANOGRAFICO DE LA ARMADA DE CHILE
INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
INTERNATIONAL TSUNAMI INFORMATION CENTER

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EARTHQUAKES AND TSUNAMIS

TEACHER'S GUIDEBOOK

PRE-ELEMENTARY SCHOOL

GENERAL REMARKS

OBJECTIVES: The enunciated objectives in the teacher's guidebook are the minimum to achieve for each content.

CONTENTS: The worked chapters in the guidebook are five. Each one numbered with romans; the text has been graduated accordingly.
For chapters I and II it is suggested to work with direct experiences, using concrete materials, before developing the text.

ACTIVITIES: The enunciated activities are the minimum for each objective. It is suggested that the teacher wides this range of activities.

4A

INTRODUCTION

OBJECTIVES:

- Recognize the characters of the textbook.
- Describe their characteristics.
- Dress the characters with your country's national costume.
- Learn by heart and dramatize the poem "Shaking and Tsumi"

ACTIVITIES:

- Teacher introduces the text book describing its chapters.
- Teacher introduces the characters Johnny Shaking and Tommy Tsumi.
- Let the student watch Johnny Shaking associating him with the world.
- Guide through questions the description of the characters.
- Name the characters, identify and show them.
- Color the characters.
- Listen to the reading of the poem "Shaking and Tsumi"; comment, answer questions, dramatize, repeat first strophe.
- Description of the drawings, watch the earth globe, watch the water and land parts of it.
- Invite students to dress the characters with your country's national dress.

COMMENTS:

- How are earthquakes and tsunamis produced?
- What is a tsunami?
- Listen to the children, answer their questions.
- Look for reactions to these natural hazards.
- The teacher tells the studens about one known tsunami in the area.

MATERIALS:

- Textbook - Drawings 1 and 2 - Scissors - Sheets of paper - Glue
- Colored pencils - Annex 1, poem "Shaking and Tsumi".

I SHAPE AND MOVEMENTS OF THE WATER

OBJECTIVES:

- Identify objects.
- Relate experiences with objects.
- Discriminate water shapes.

SUGGESTED ACTIVITIES:

- Teacher will perform a previous work with trays and pans of different shapes.
- Invite students to comment on the different shapes water takes in the different containers, and on the different water stages: liquid, gas, solid (ice).
- The cause - effect phenomenon.
  1) What happens with the ice and the heat? Watch.
  2) What does happen when you shake a bottle with soda water?
- Watch
  1) water from a faucet
  2) water pouring from a pan to another one.
  3) water through a straw.
  4) water in a tray.
  5) blowing over the water surface.
  6) water circulating through a water hose.
- Color

Homework: Pour water in the sink and blow. What happens?

MATERIALS:

- Textbook
- Drawing 3
- Colored pencils

OBJECTIVES:

- Comment on the drawings
- Follow the dashed lines
- Identify various modes of water transportation

ACTIVITIES:

- Take a walk to the beach watching the movements of the water.
- Teacher introduces drawing to the students.
- Direct students through specific questions.
- Invite the students to join the dashed lines.
- Watch the students doing their drawing
- Describe the wave patterns
- Invite the students to comment (e.g. describe each wave pattern) and relate their own experiences.
- Comment on tranportation means used at sea.
- Reinforce poem and dramatize.

MATERIALS:

- Textbook
- Drawings 4 and 5
- Colored pencils

OBJECTIVES:

- Watch and describe the drawings.
- Comment the drawings.
- Relate with own experiences.

SUGGESTED ACTIVITIES:

- Teacher introduces drawing.
- Invite students to comment and describe each drawing, individually, recalling their own experiences. As a group, comment the positive and negative effects of water.
- Color.

MATERIALS

- Textbook
- Drawing 6
- Colored pencils

II PERMEABILITY AND BUOYANCY

OBJECTIVES:

- Cut out the figures of drawings 7 and 8.
- Classify waterproof and permeable elements.
- Stick the waterproof and permeable objects in the proper places.
- Classify floating and non-floating elements.
- Stick the floating and non-floating objects in the proper places.

SUGGESTED ACTIVITIES

- Teacher will ask students to comment on the subject, describing the objects of the drawing.

I.- Permeability.

Group observation:
What is a water-proof element? Listen to students answers.

1) Afterward, put in a tray with water the following objects: sponge, toilet paper, inflated balloon with a piece of paper in its interior, wool piece of cloth. What elements do "suck" water?

2) Wet an umbrella and a raincoat. Which one of those objects do "suck" water?

II.- Buoyancy.

- Put in a pan with water the following objects: an empty and closed bottle, an empty and closed box, a piece of wood, nails, metal and plastic forks and knive, tree leaves, inflated balloon, and stones.
- Watch and comment when the bottle is uncapped or when the box is full of water.
- Determine if the spoon, fork and knife of the picture is metallic or plastic and stick them in the proper places.

MATERIALS:

- Textbook - Drawings 7 and 8 - Scissors - Glue - Colored pencils
- Balloon - Sponge - Paper - Tree leaves - Piece of wood - Stones - Umbrella - Raincoat - Bottle - Nails - Cork - Fork, spoon.

III LIVE STYLES AT DIFFERENT SETTINGS

OBJECTIVES

- Watch and comment on the students drawings.
- Draw the line
- Choose shortest way to the hill and mark.
- Color.

SUGGESTED ACTIVITIES:

- Teacher introduces the drawing.
- Invite students to comment on the drawing.
- Mark the shortest route to reach the hill.
- Draw yourself running away from the wave to the hill.
- Color.

MATERIALS:

- Textbook
- Drawings 9, 10, and 11
- Colored pencils

OBJECTIVES:

- Examine and describe the drawings and characters.
- Order the drawings in a logical sequence.
- Invent a tale.
- Complete unfinished tale.

SUGGESTED ACTIVITIES:

- Teacher invite students to comment on the drawings.
- Cut out and order the drawings in sequence.
- Invent a tale.
- Color.
- Teacher will tell the tale "The Presumptuous Mouse".
- Teacher will read "Unfinished Tales" and the students will complete it.
- The students should circle the correct object, according to readings of the unfinished tales of drawings 14 and 15.

MATERIALS:

- Textbook, Colored pencils, Scissors
- Drawings 12, 13, 14 and 15, Annex 2, tale "The Presumptuous Mouse"

IV EARTHQUAKES AND TSUNAMIS

OBJECTIVES:

- Examine and describe each drawing.
- Name characters and surroundings.
- Discriminate notions over-under.
- Talk about the importance of protecting ourselves during an earthquake.
- Mark dashed lines (waves in drawing 18).

SUGGESTED ACTIVITIES:

- Teacher introduces drawings.
- Students comment about drawings.
- In a practical way concepts over-under are worked.
- Students place themselves under the table at a signal (start and end of an earthquake).
- Comment with the students: safe places during an earthquake when they are at the school and at home:
- Drawing 16. What parts of our body are to be protected and why? Listen and comment the answers.
  Shall I stand up close to a window, mirror or tall furniture?
- Drawing 17. Why is Shaking standing up under the frame of the door?
- Drawing 18. Why the child is in the hill? What elements does he have and why? Where is Shaking going and who is following him? What does Shaking have in his hand?
- Color.
- Mark dashed lines.
- Students express themselves with their bodies.

MATERIALS:

- Textbook
- Drawings 16,17,and 18
- Furniture
- Colored pencils

V HAZARDS PREVENTION

OBJECTIVES

- Identify drawing character
- Describe drawing elements
- Comment on the importance of these objects if a big earthquake occurs
- Name elements of a first-aid kit
- Mark dashed lines
- Color
- Invent a tale about Johnny Shaking

SUGGESTED ACTIVITIES:

- Teacher introduces drawing.
- Invite students to describe drawing.
- Handle introduced objects directly.
- Show objects usefulness. Comment first-aid elements to take in case of a tsunami.
- Mark dashed lines.
- Color.

MATERIALS:

- Textbook
- Drawing 18
- Flashlight
- Portable radio
- First-aid kit

OBJECTIVES:

- Look at and describe the drawings.
- Comment on the circumstances of each drawing.
- Comment about what must be done in case of a big earthquake.
- Look for solutions to potentially dangerous situations.
- Identify characteristics of a tsunami: perils, personal behavior, practical routes to take in case of a tsunami.

SUGGESTED ACTIVITIES:

- Teacher introduces drawings to students.
- Comment on drawings.
- Cut out figures.
- Stick figures showing safe locations and what must be done in case of a big earthquake.
- Talk about tsunami characteristics: water withdrawal and waves.
- Mark dashed lines (drawing 22).
- Circle children who are reacting correctly.
- Color.
- Mark shortest route to the hill.

MATERIALS:

- Drawings 20, 21, 22, 23 and 24
- Colored pencils
- Sheets of paper and glue
- Scissors

ANNEX 1 POEM

"SHAKING AND TSUMI"

I

I'M JOHNNY SHAKING
NEIGHBOR OF THIS PLACE,
WHEN I TAP DANCE ON THE EARTH
A LOT OF DUST IS RELEASED.

BY GOD! THE EARTH SHAKES
CAUSE HOW HEAVY I AM,
FROM HERE NOBODY ORDERS ME ABOUT
BECAUSE I LEAVE BY MYSELF.

II

ONCE JOHNNY SHAKING LEAVES
I COME QUICKLY AFTER HIM,
WITH ALL MY FRIENDS THE WAVES
I GET ONTO THE LAND.

TOMMY TSUMI IS MY NAME
AND WHEN YOU SEE ME COMING
YOU HAD BETTER RUN AWAY.

ANNEX 2

THE PRESUMPTUOUS MOUSE

SITTING ON A ROCK
THERE WAS A MOUSE
THINKING ABOUT HIS FUTURE,
AND HE DIDN'T FIND ANY SOLUTION.

The very presumptuous mouse wanted to get married, but he didn't want to marry an ordinary female mouse. He wanted to marry the most powerful being of the earth.
He walked up and down and thought, who would be the most powerful being on earth:

MOUSE Who would it be?, who would it be?, ...I know, it's the sun because he gives us heat; he is the king star, I will go to him. Sun, you are the most powerful being of the earth. Would you marry me?

SUN No, I'm not the most powerful being on the earth. Most powerful than me is the cloud, because when she comes I'm covered and my rays are filtered.

MOUSE Cloud, you are the most powerful being on earth. Would you marry me?

CLOUD No, I'm not the most powerful being on the earth. Most powerful than me is the wind, because when she blows she pushes me far away.

MOUSE Wind, listen to me, you are the most powerful being on the earth, please marry me.

WIND No, I'm not the most powerful being on the earth. Most powerful than me is the volcano, because I move clouds, trees and leaves, but I strike a volcano and I can not move it.

MOUSE Volcano, you are the most powerful being on earth. Would you marry me?

VOLCANO No, I'm not the most powerful being on the earth. Most powerful than me is a beautiful female mouse that gnaws and gnaws my feet and doesn't leave alone.

MOUSE How presumptuous I've been! Me, despising the little mouse and she is the most powerful being on earth! I will go see her. Beautiful, beautiful Miss Mouse. Do you want to marry me?

MISS MOUSE I will think it over, well ....well, yes I will marry you.

AFTER SO MUCH THINKING AND TRAVELING OVER THE EARTH, THE PRESUMPTUOUS MOUSE FOUND ***HIS HAPPINESS.***

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PRE- ELEMENTARY SCHOOL TEXTBOOK

ABOUT THE TEXTBOOK

This book is the result of both the implementation of Recommendation ITSU-XIII.3 of the Thirteenth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, and the work of several education experts. An ad-hoc Working Group headed by H. Gorziglia (Chile), revised the work done by the experts who were partially funded by the Intergovernmental Oceanographic Commission.

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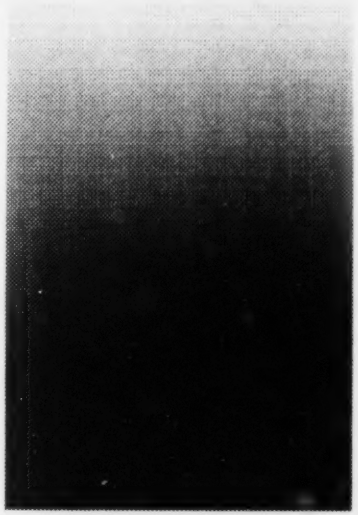
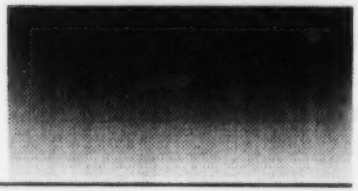
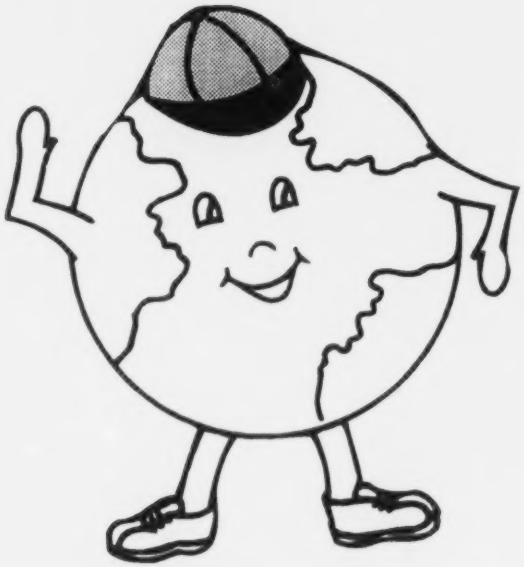


CHAPTER I

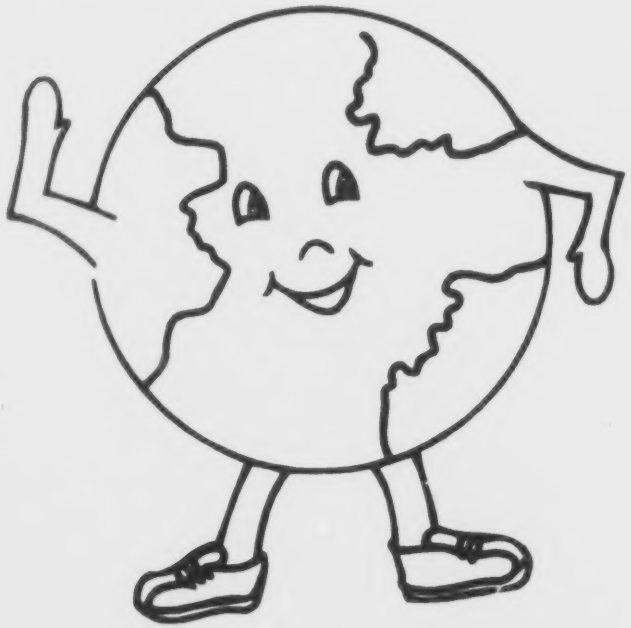
SHAPES AND MOVEMENTS OF THE WATER



HELLO! HERE WE ARE...



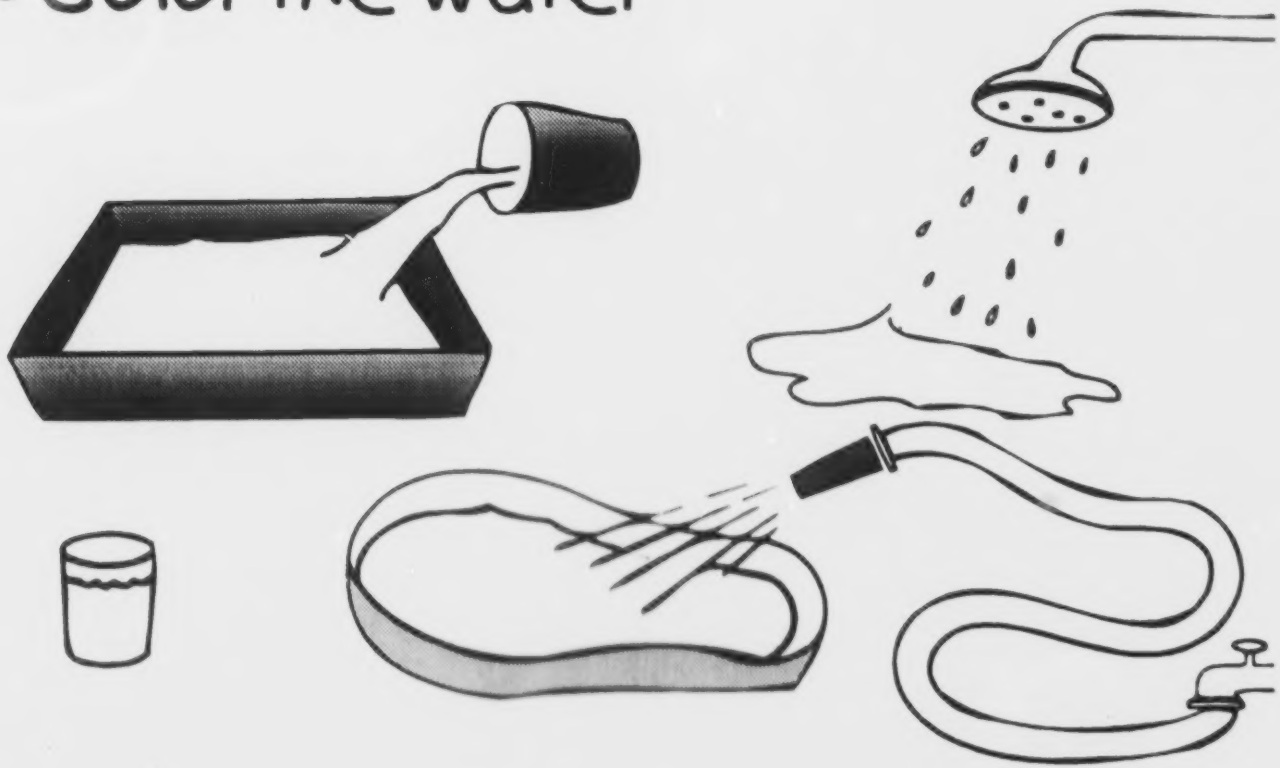
Johnny Shaking and Tommy Tsumi



Dress with the national costume and color.

SHAPES AND MOVEMENTS OF THE WATER

- Color the water

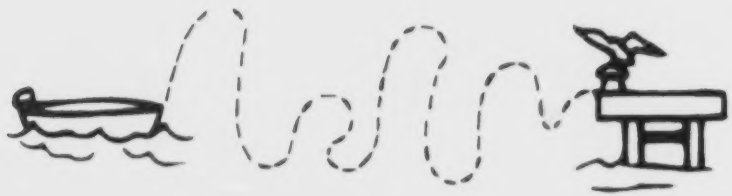


DRAWING N° 3

27 27

MOVEMENTS OF THE WATER

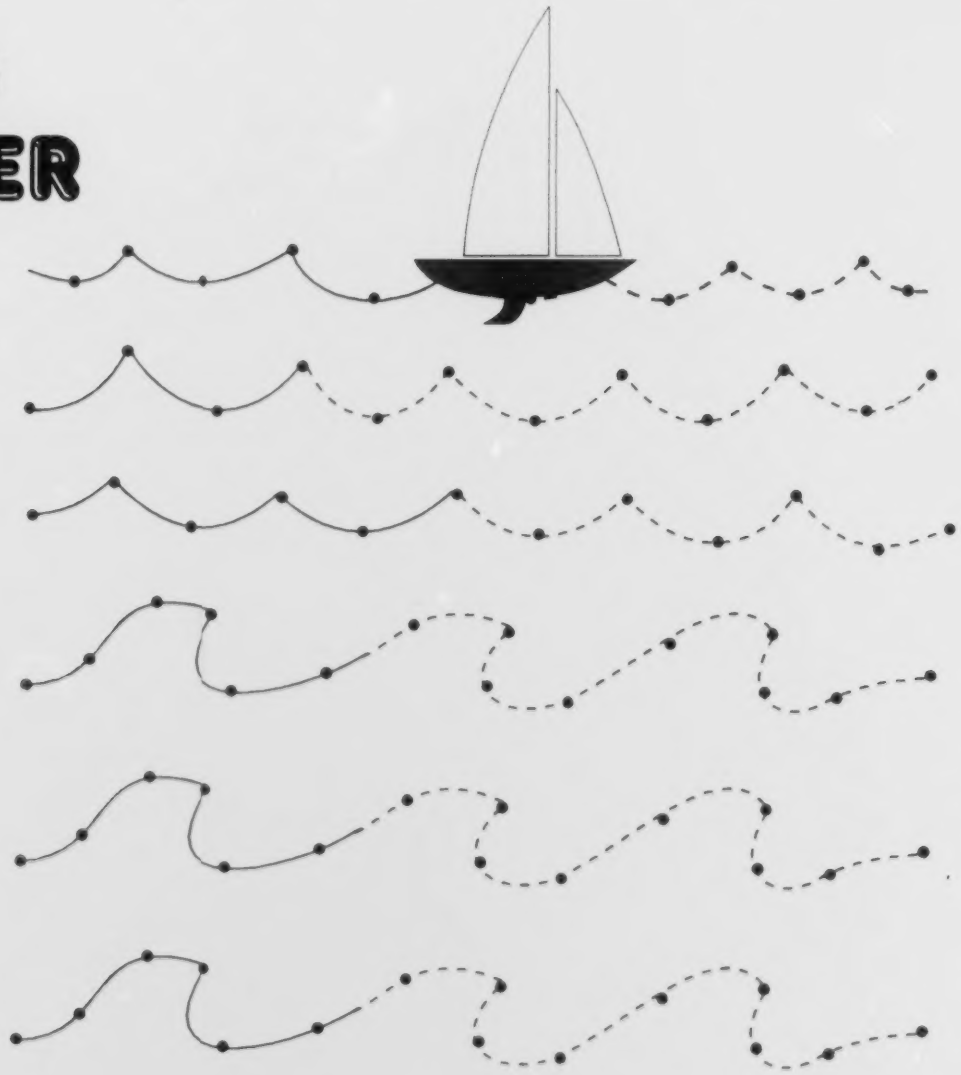
Join
the traces
of waves.



DRAWING N° 1

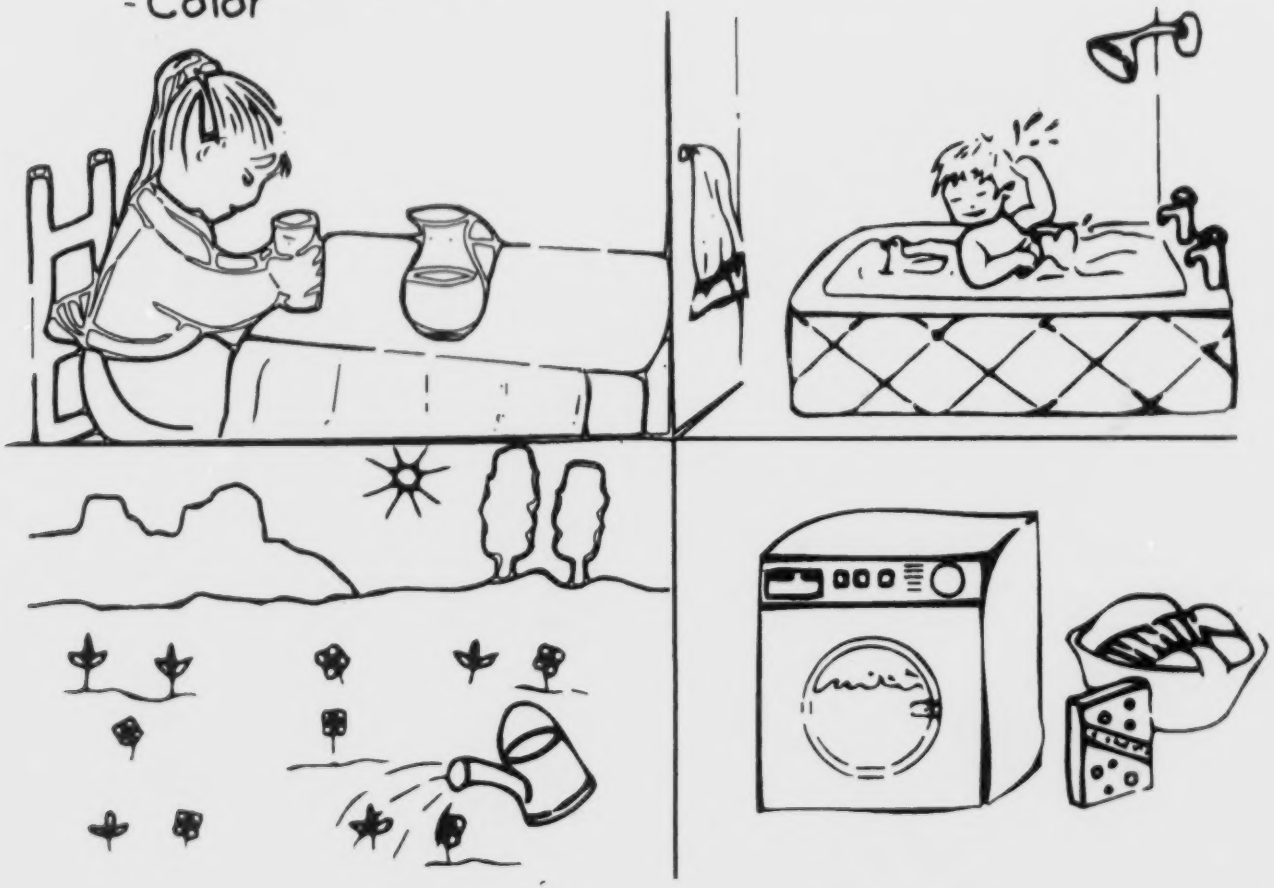
MOVEMENTS OF THE WATER

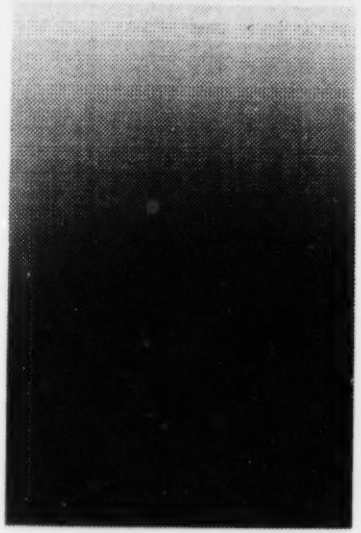
Join the dots to show the waves.



USEFULNESS OF WATER

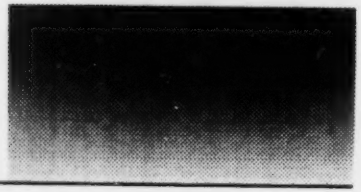
- Describe the drawings
- Tell experiences
- Color





CHAPTER II

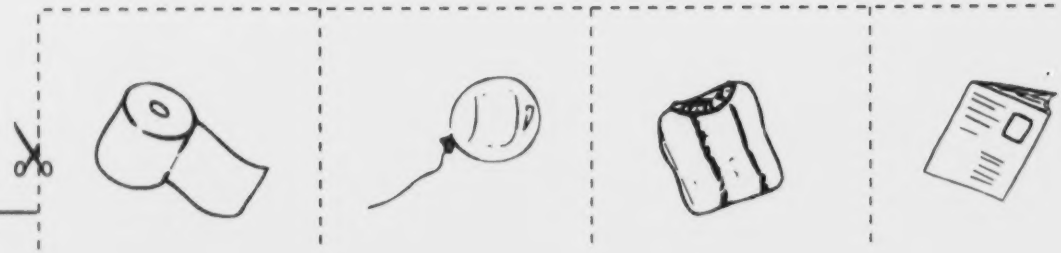
PERMEABILITY AND BUOYANCY



- Cut out the pictures at the bottom of the page.

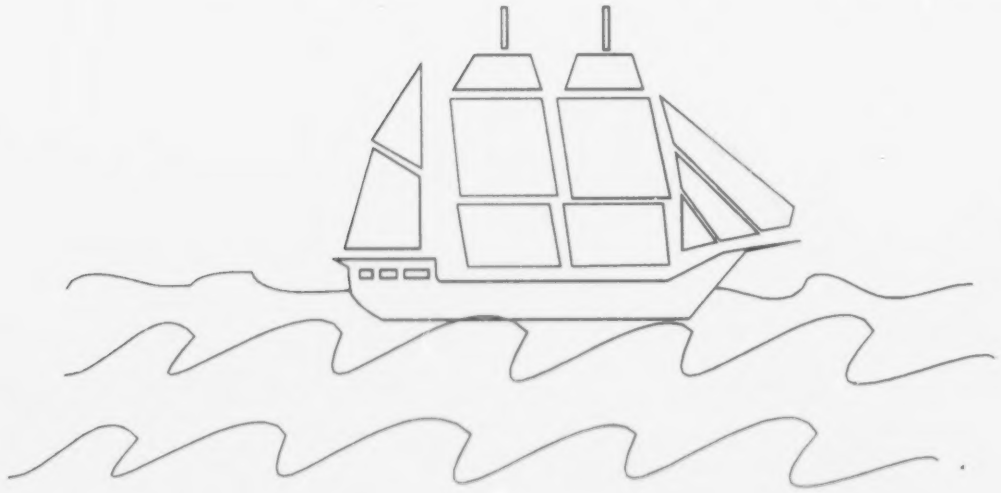
- Stick permeable elements under umbrella.

- Stick waterproof elements on the unbrella.

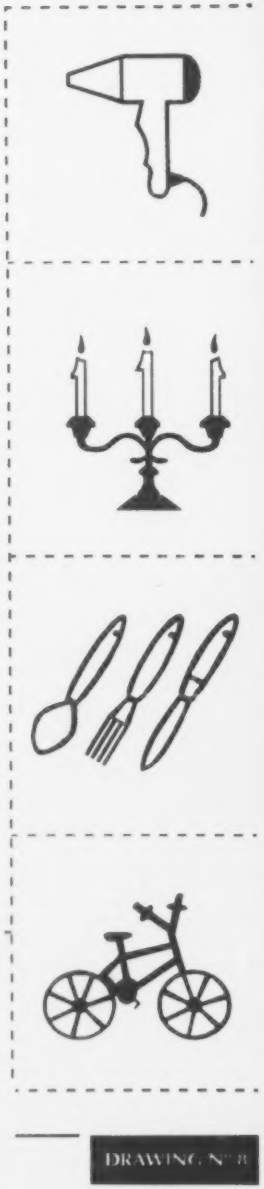


- Cut out the pictures at the bottom of the page.

- Stick floating elements on the sailboat.



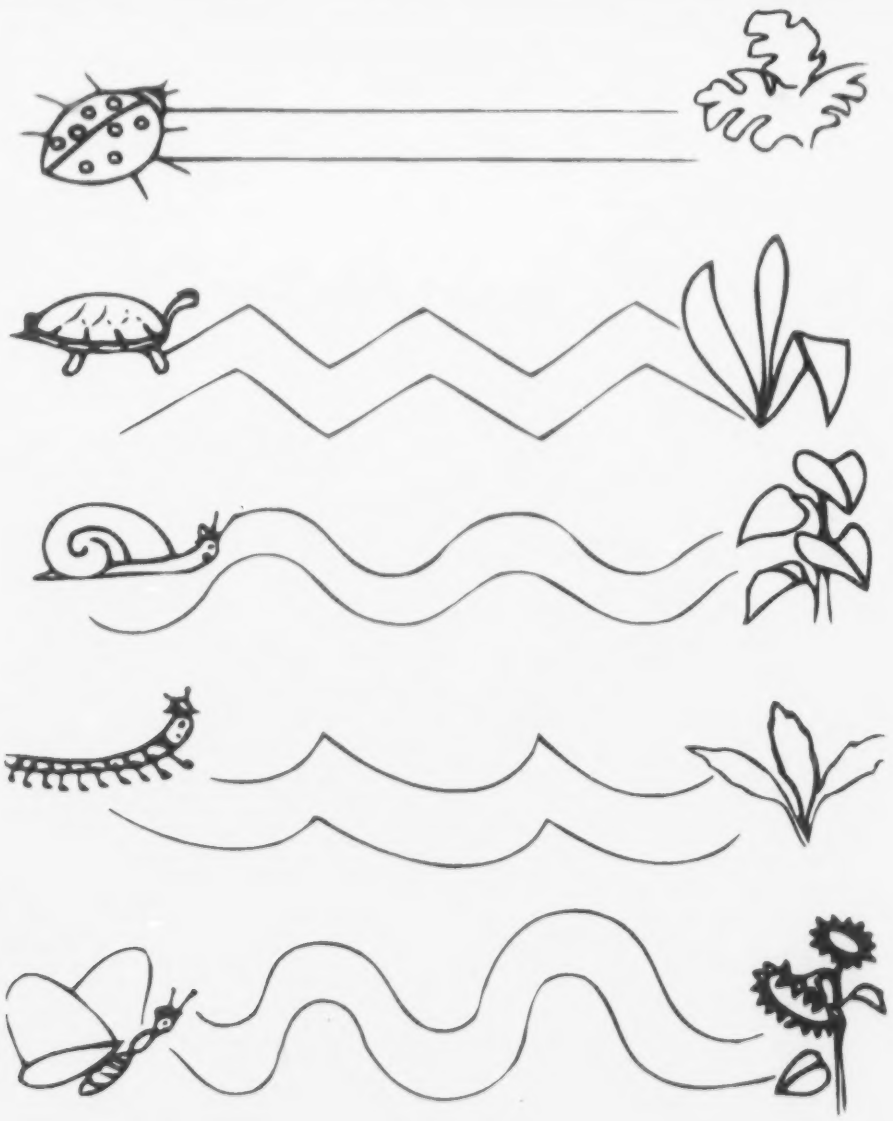
- Stick non-floating elements under the sailboat.



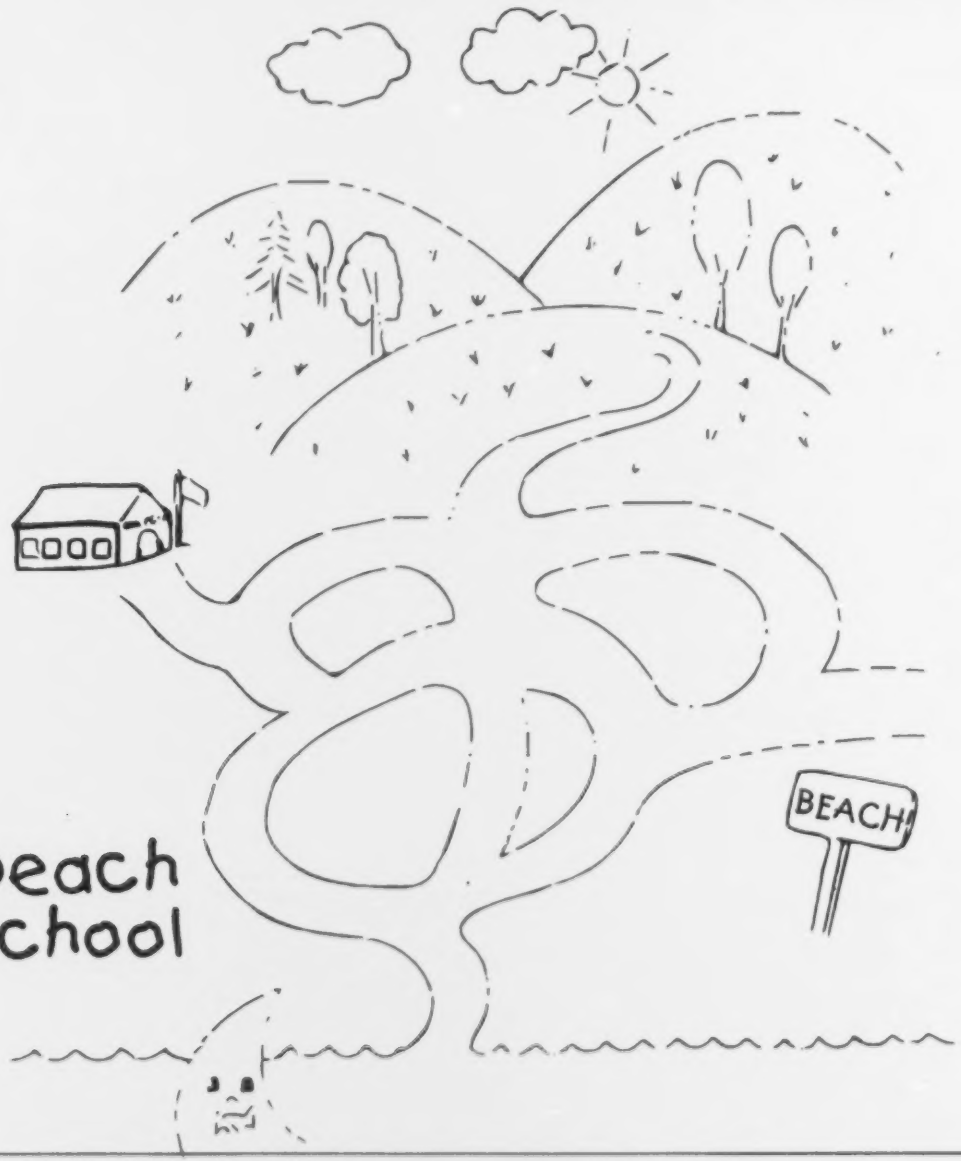
CHAPTER III

LIFE STYLES AT DIFFERENT SETTINGS

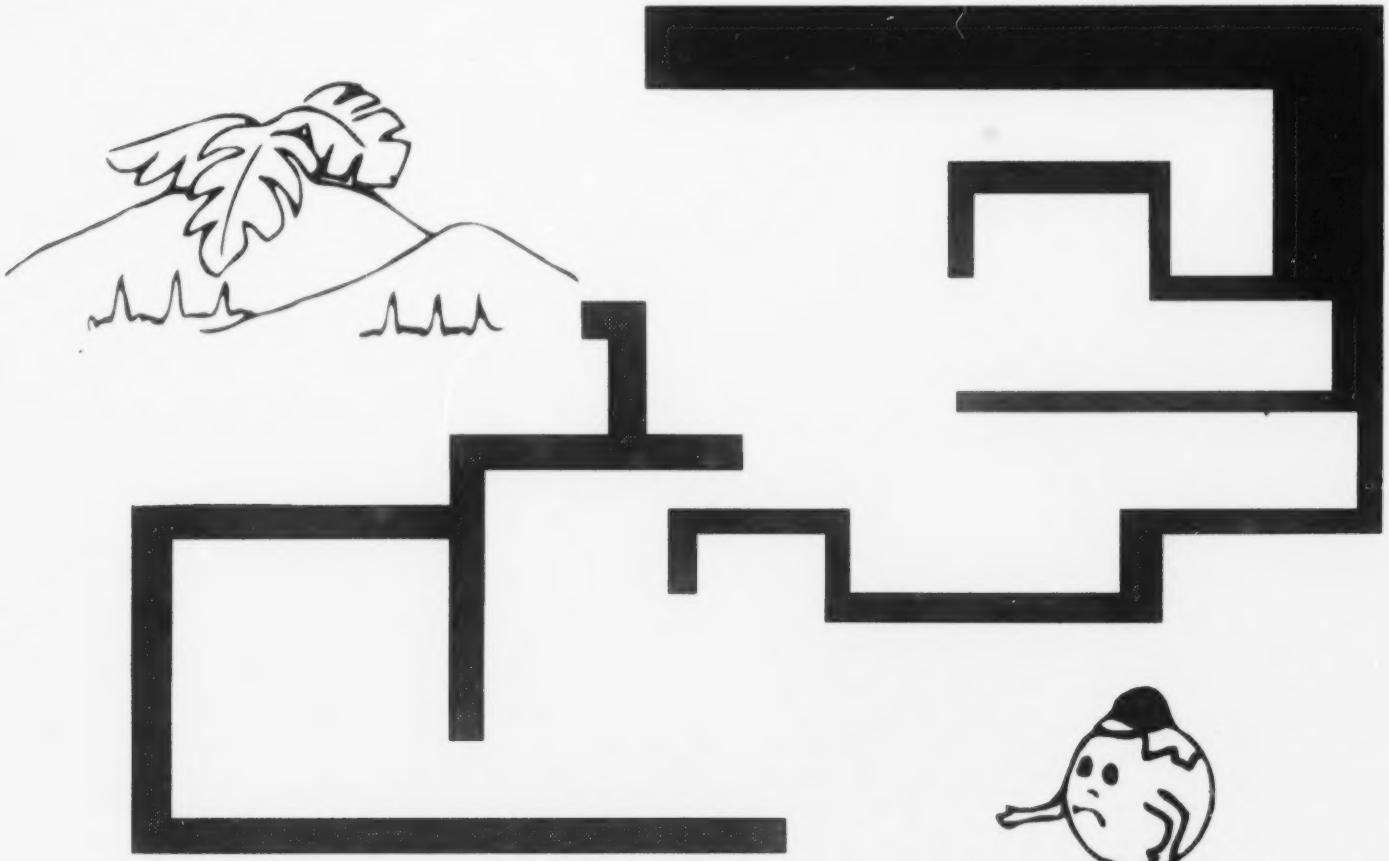
Mark the way of each animal to reach home.



Look for
the shortest
way
to the hill.



...if you are at the beach
...if you are at the school



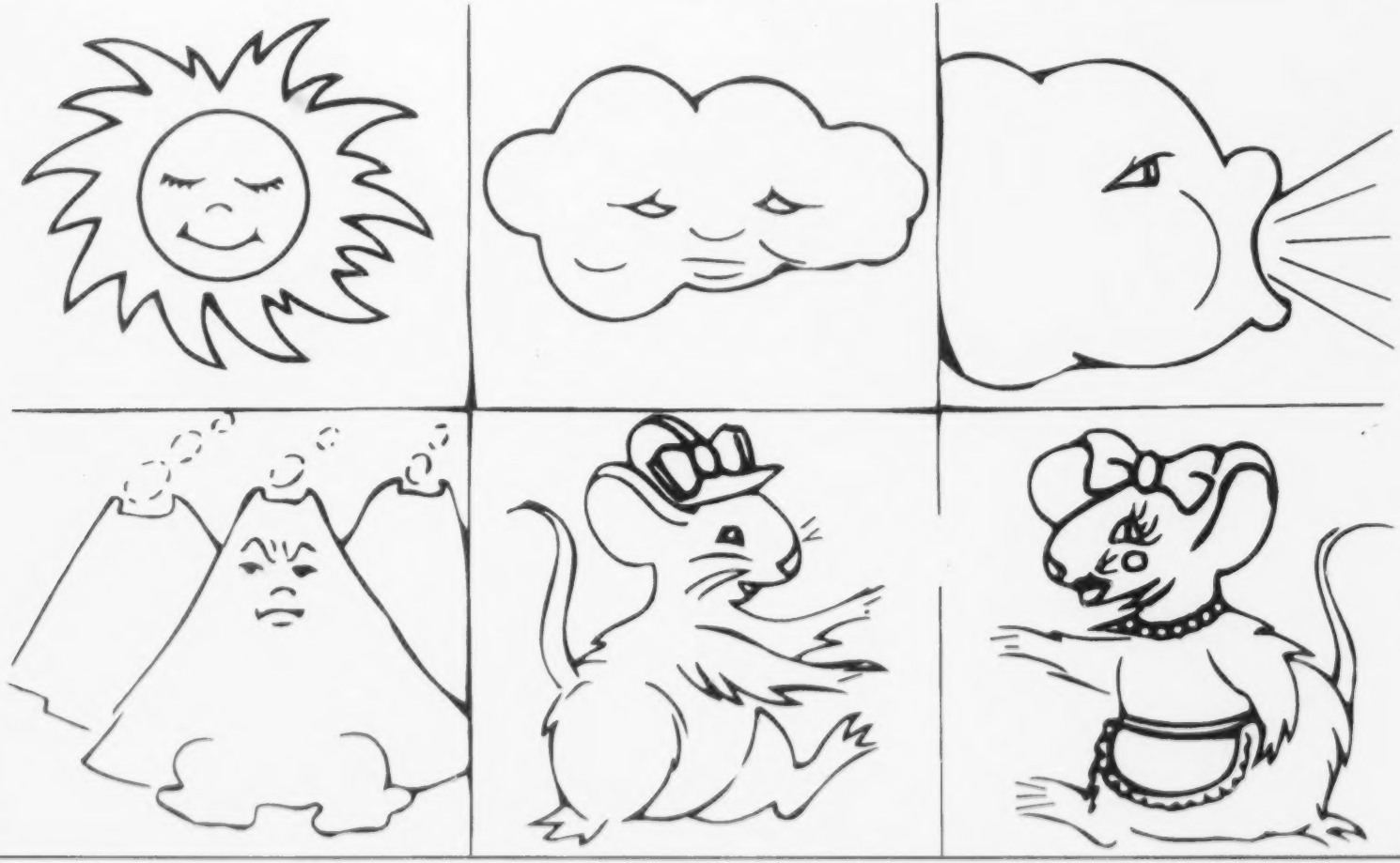
Mark the shortest way
to reach the hill.

- Invent a tale about Johnny Shaking.
- Put the drawings in order.

METEOROLOGICAL PHENOMENA

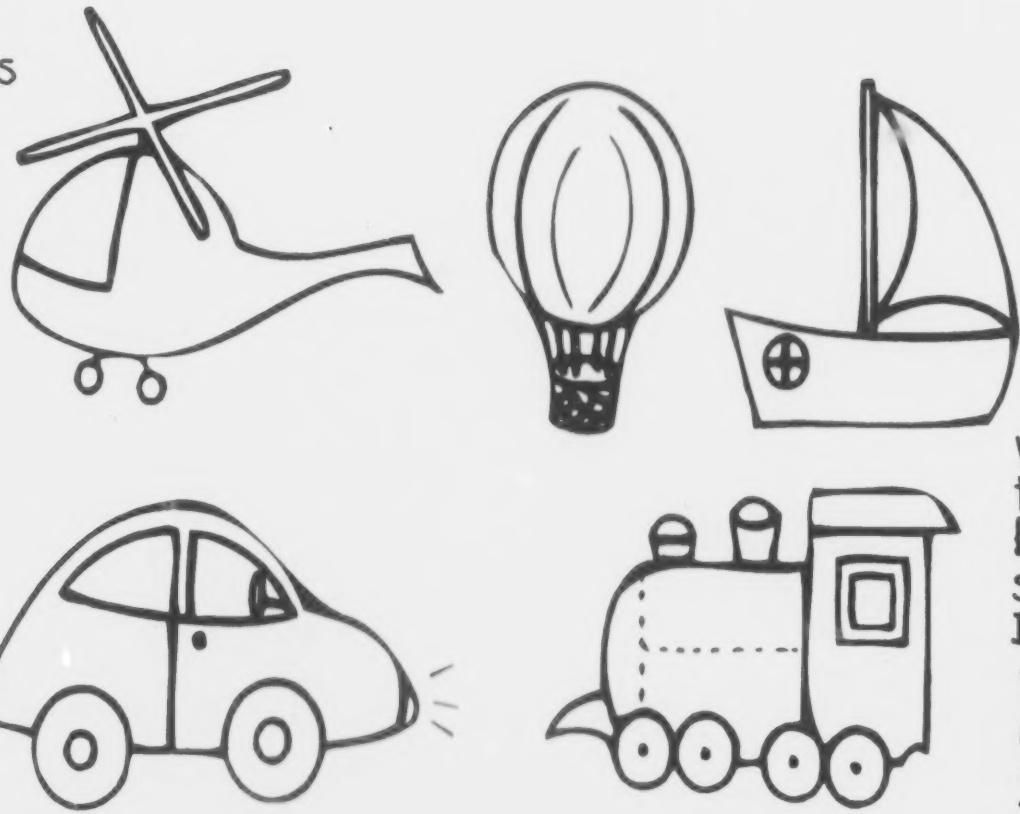
TALE: "THE VAIN MOUSE"

- Cut out and order the drawigs in a logical sequence..



UNFINISHED TALES

When traveling
by sea
swimming fishes
are seen
if I go sailing
what shall
I take...?



When I travel
through the sea
by ship,
sailboat or motorboat
I can navigate.
With the
merry-go-round
of the waves
I move endlessly.

DRAWING N-14

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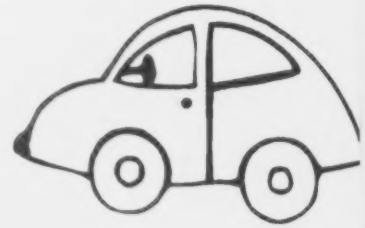
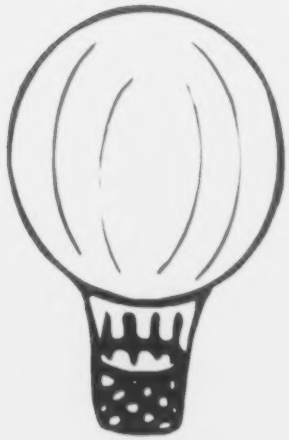
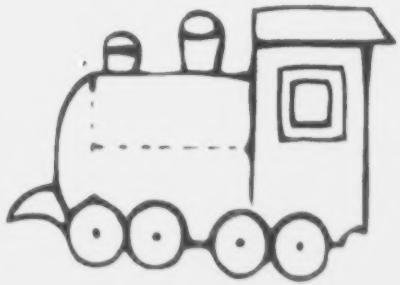
How good is to enjoy
a nice walk in the country
riding a horse,
but I could be late.
What shall I take
to arrive sooner...?

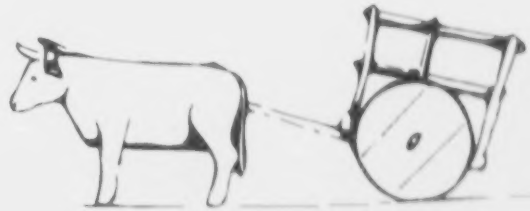
By car I can reach everywhere.





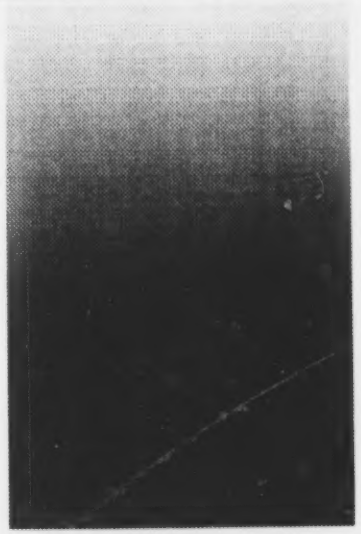


If I take a...
I could be late,
I can use a bike,
a skateboard
or simply walk,



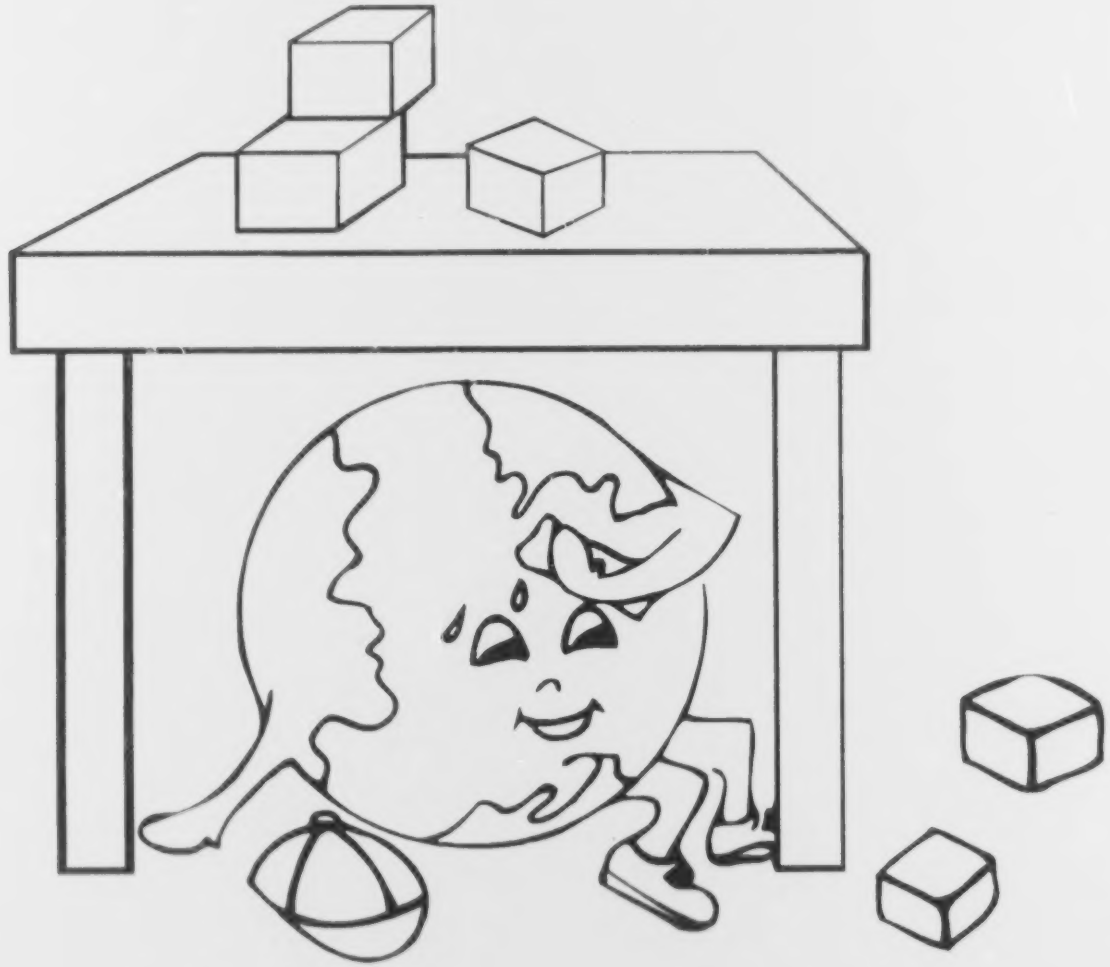
and up to the top of the hill,
in time I will arrive.

DRAWING N° 15



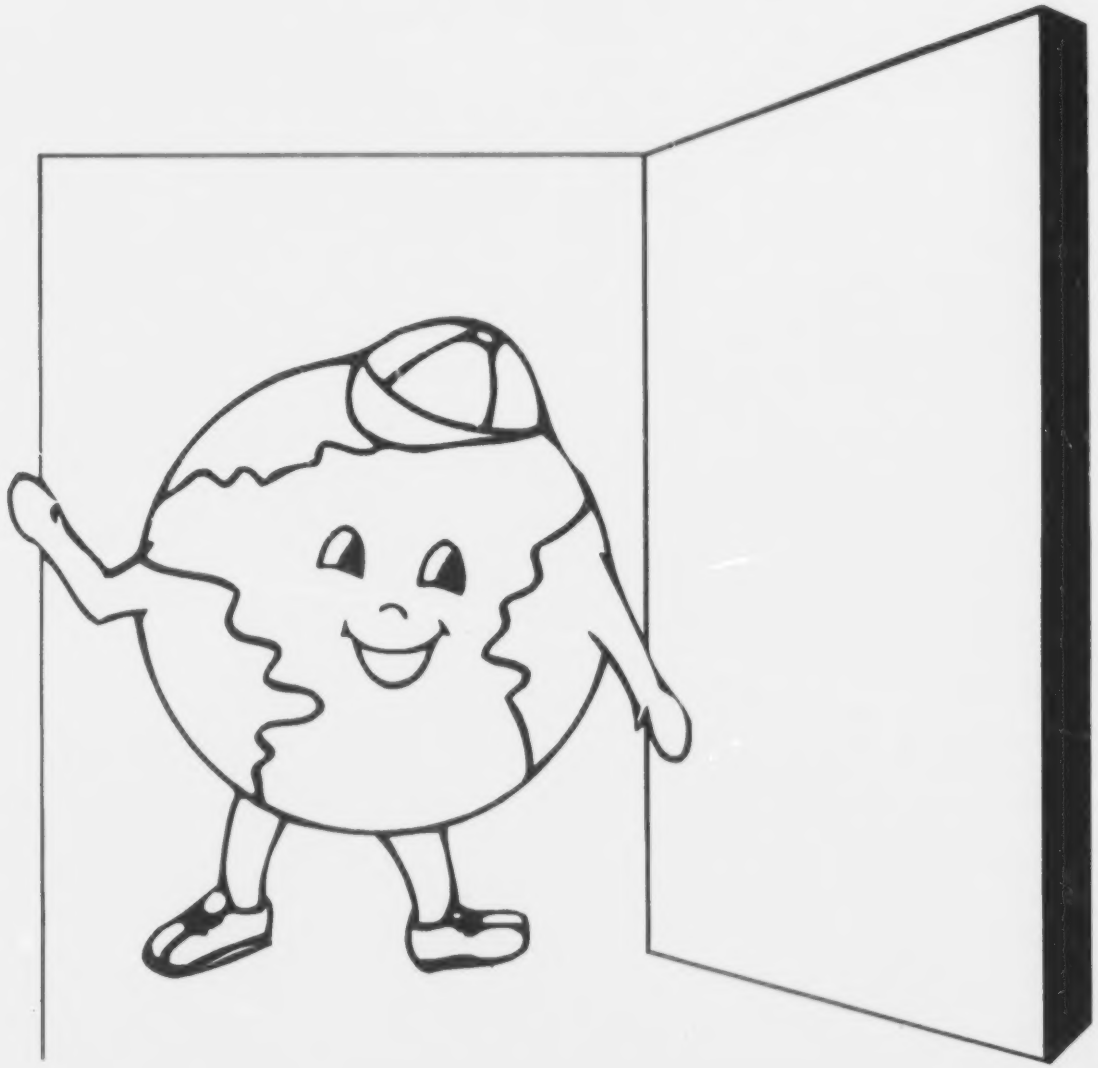
CHAPTER IV

EARTHQUAKES AND TSUNAMIS

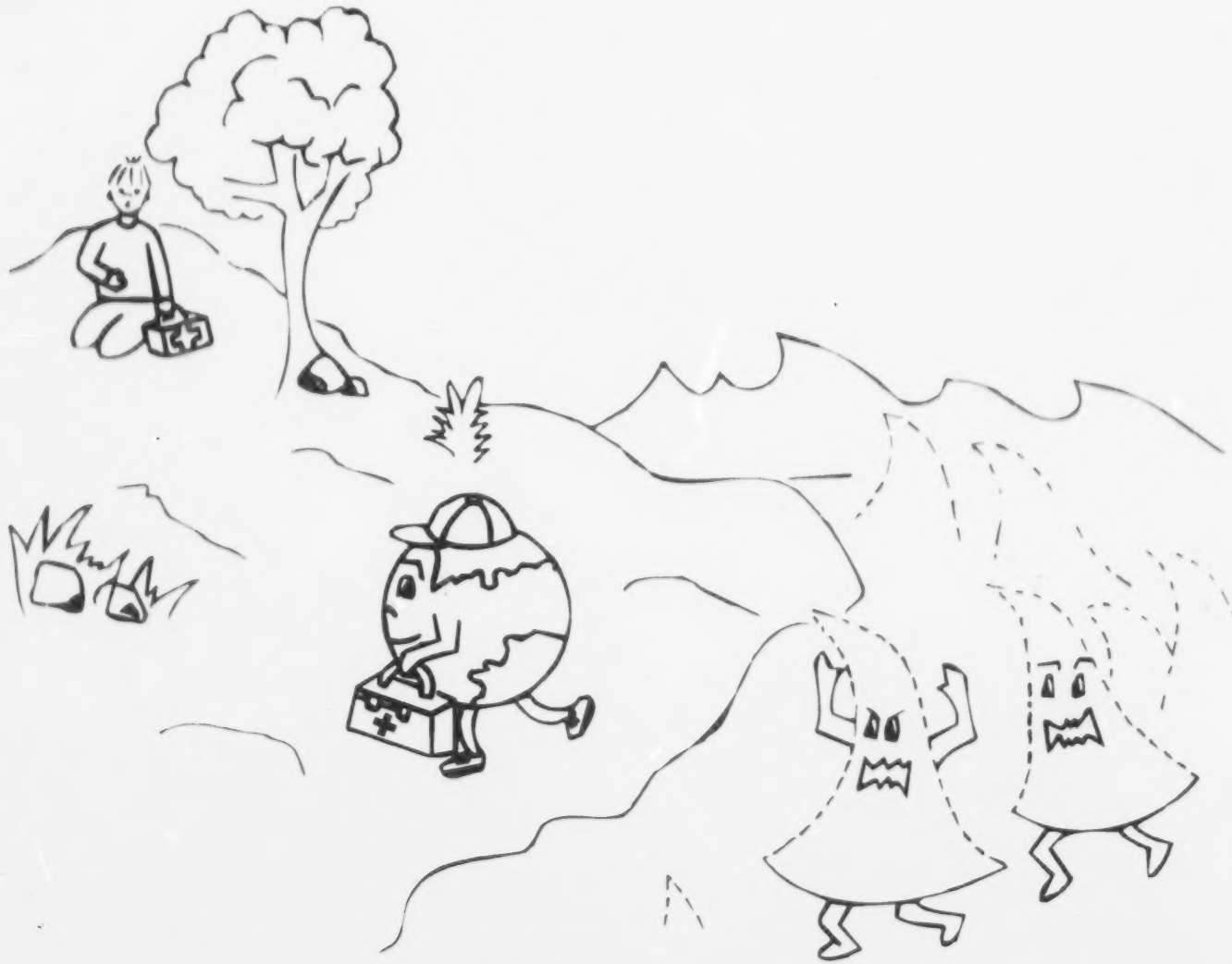


DRAWING N° 16

59.



DRAWING NO. 17

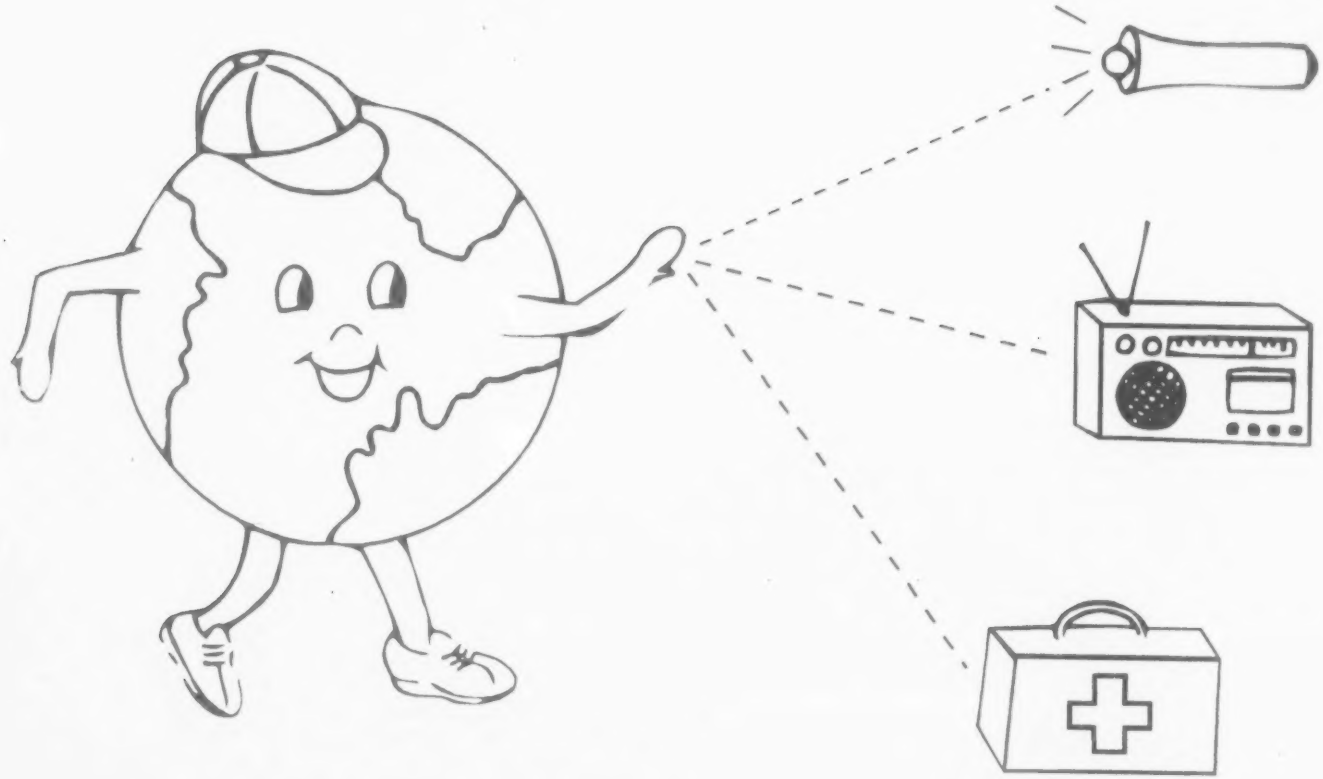


DRAWING N° 18

63

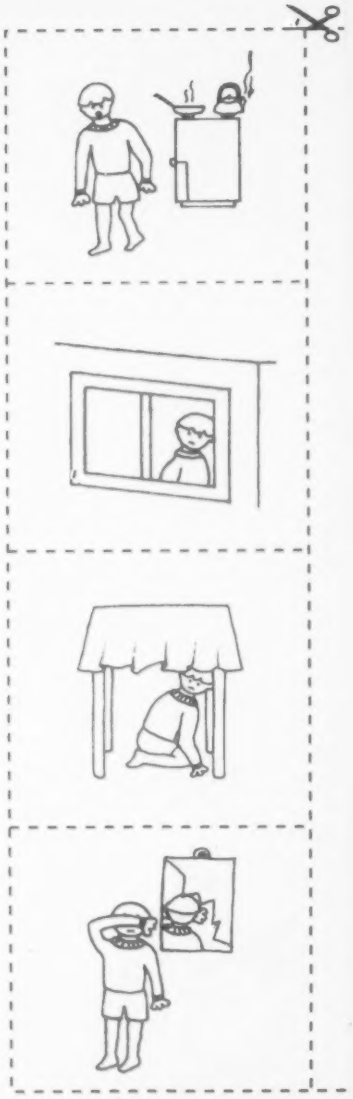
CHAPTER V

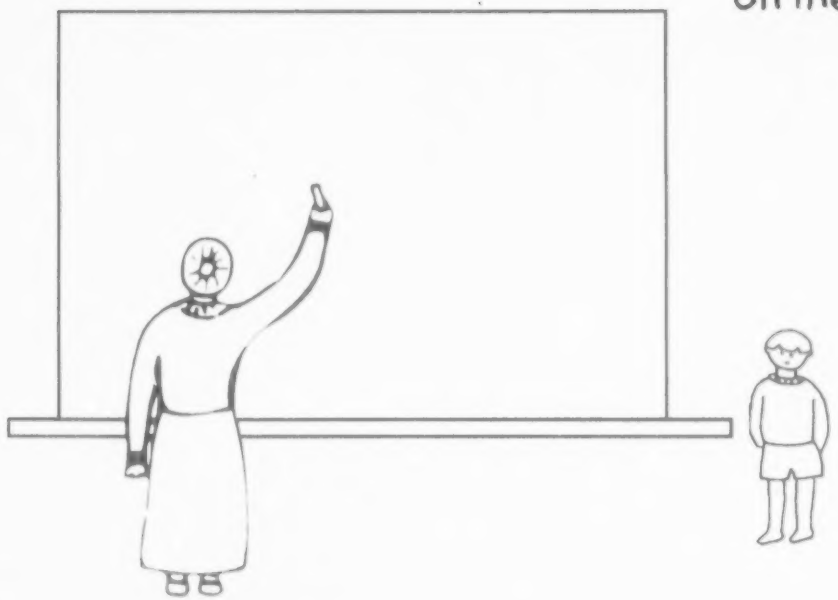
HAZARDS PREVENTION



IF YOU ARE AT HOME...

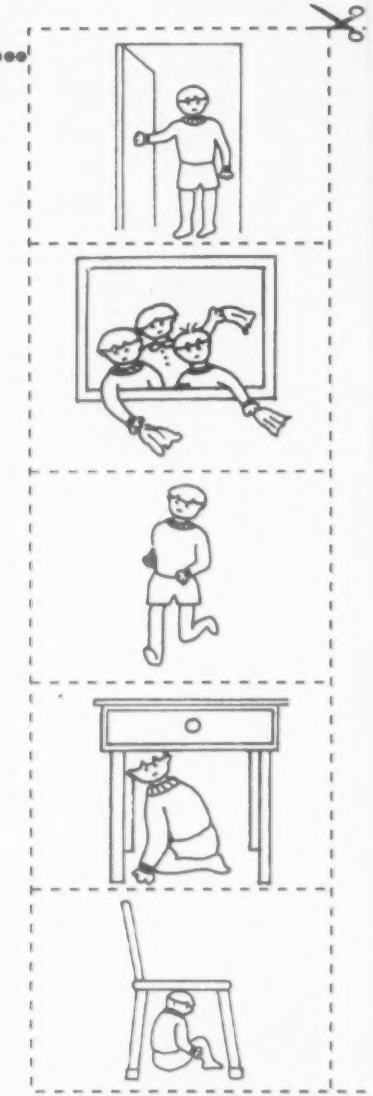
Cut out the pictures and stick the safe locations inside the house.



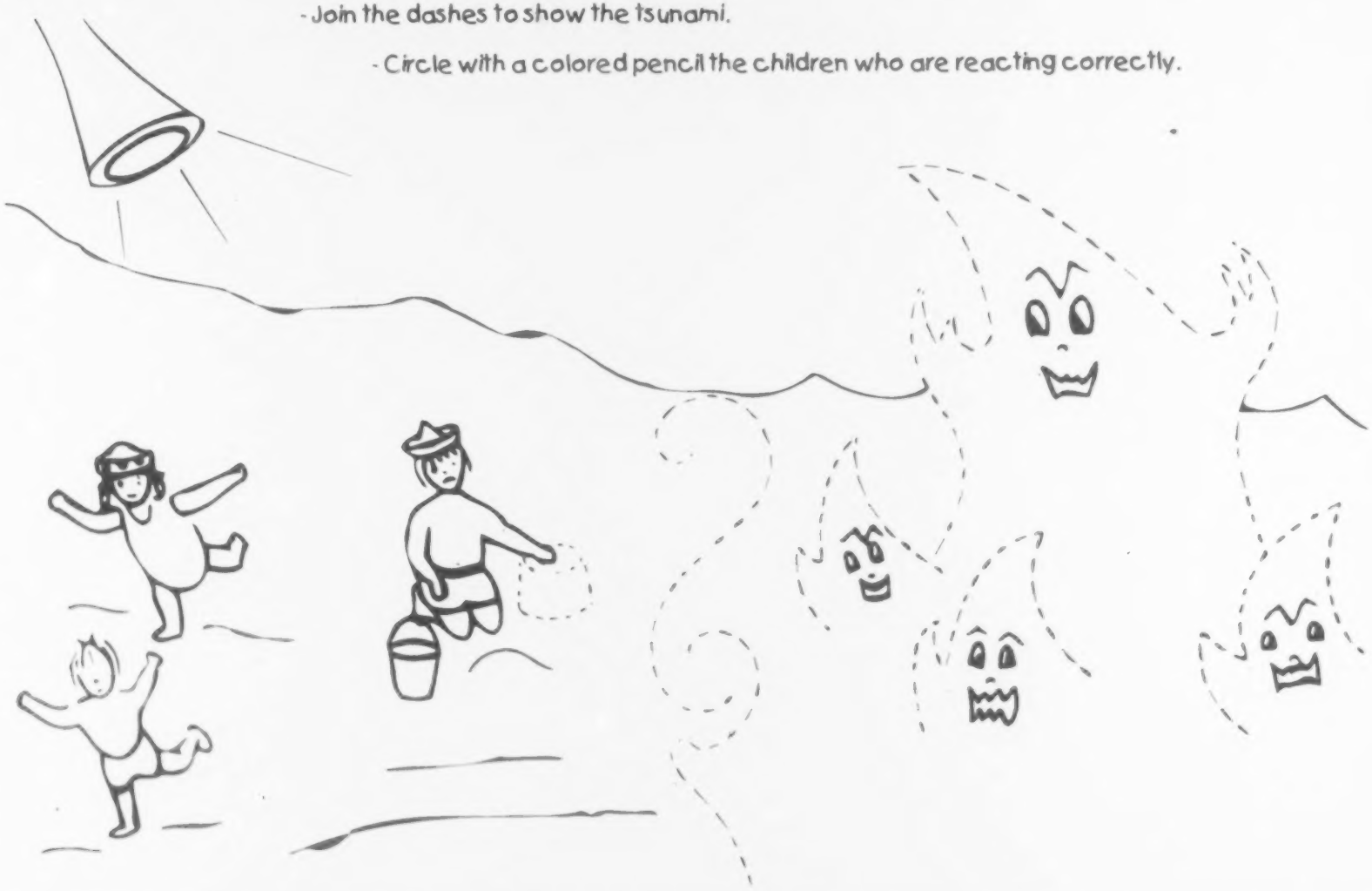


IF YOU ARE AT THE SCHOOL...

- Cut out the pictures and stick the safe locations on the teacher's blackboard.



- Do not ignore the announcements of a tsunami.
- Join the dashes to show the tsunami.
- Circle with a colored pencil the children who are reacting correctly.

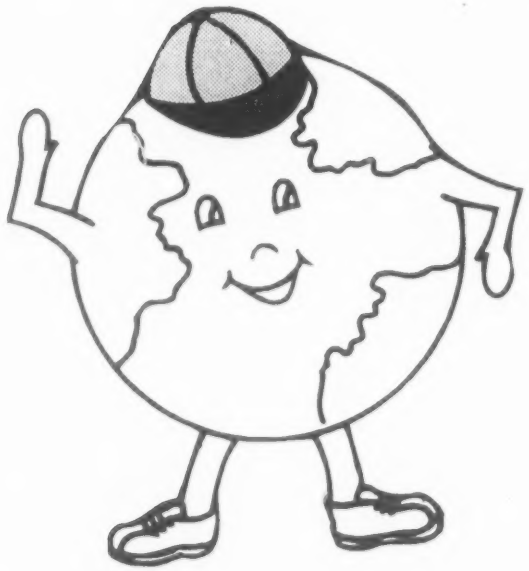


DRAWING N° 23

- Mark with a colored pencil the shortest way from the school to the hill.
- Color the tsunami waves.

DRAWING N° 24

HERE WE SAY... GOOD-BYE!!



Johnny Shaking and Tommy Tsumi